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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,269	05/25/2001	Sasan Cyrusian	10808/27	5524

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EXAMINER	
NGUYEN, HIEP	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/866,269	CYRUSIAN, SASAN	
	Examiner	Art Unit	
	Hiep Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5-14 and 17-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,5-14 and 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *20-23* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 3, 5-7, 13, 14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and /or clarification is required.

Regarding claim 2, the recitation "a control input **and** power supply voltage controlling the delay is connected to sources of the first amplifier and the delay unit uses substantially all available power supply voltage" is indefinite because it is misdescritpve. Though the drawings (figs. 3A, 3B, 4A, 4B and 5-8) appear to show that the sources of the transistors of the first amplifier are connected separately to two different sources of voltages: the power supply voltage and the control voltage. As understood by the examiner, the sources of the transistors of the first amplifier are connected to a same control voltage (97) as shown in figures 9 and 10. The Applicant is requested to explain what the recitation "the delay unit uses substantially all available power supply voltage" is meant by. The same rational is applied to claims 3, 5, 7 and 13.

Regarding claim 3, the recitation "a fifth and a sixth transistor connected in series with the first and second transistor" is indefinite because it is misdescriptive. Figure 3B of the present application shows that the fifth and a sixth transistor connected in parallel with the first and second transistor respectively.

Claims 6, 14 and 17 are indefinite because of the technical deficiencies of claims 5 and 7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 7-9, 10-14 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Du (US Pat. 5,568,099).

Regarding claim 2, figures 11 and 15 shows a delay lines comprising at least two four-transistor delay units, comprising: a first amplifier (4910, 4920) a second amplifier (4930, 4940). The differential inputs are signals (pi-1) and (ni-1). Signal (Vcnt') is the "supply voltage and control voltage".

Regarding claims 7, 8, 9 and 11, figures 11 and 15 shows a voltage-controlled oscillator comprising a first delay unit (4500-1), a second delay unit (4500-k) Note that the number of delay units in figure can be two. The structure of each unit is shown in figure 15. (Vcnt') is the control input and power supply for the amplifiers. The first amplifiers comprise PMOS transistors and the second amplifiers comprise NMOS transistors. The voltage (Vcnt') is a positive voltage (Vdd) and the ground is coupled to the second amplifiers.

Regarding claims 10 and 12, the oscillator further comprises additional delay unit (fig. 11).

Regarding claims 13, 14, 17 and 19, the output terminals are (no-1), (po-1). The interconnection is shown in figure 15. The first amplifiers comprise PMOS transistors and the second amplifiers comprise NMOS transistors. The additional delays and their connections are shown in figure 11.

Regarding claim 18, figure 2 of Du shows the charge pump (160) and the buffer (180). Note that loop filter (180) is a buffer between the charge pump and the VCO (200).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Du (US Pat. 5,568,099) in view of Johnson et al. (US Pat. 5,994,939).

Regarding claim 3, figure 15 of DU includes all the limitation of claim 3 except for the fifth and sixth transistors. Figure 4 of Johnson shows a differential amplifier comprising loads having two transistors connected in parallel for reducing the load resistance of the circuit. As a result, the current flow increases and the switching speed increases. Therefore, it would have been obvious to those skilled in the art to implement additional transistors taught by Johnson, in parallel, to the load transistors (4910) and (4920) for improving the speed of the circuit.

Regarding claims 5 and 6, figure 15 of DU includes all the limitation of claim 3 except for the values W/L of the NMOS and PMOS transistors. However, it is old and well known in the art that when W/L ratio increases, the resistance of the transistor decreases. Therefore, it would have been obvious to those skilled in the art to increase the W/L values of the PMOS transistors to a value larger than the W/L value of The NMOS transistors for reducing the load resistance thus, the speed of the circuit increases. Figure 11 shows a plurality of four-transistor delay circuit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep Nguyen (10-28-04)

TUAN T. LAM
PRIMARY EXAMINER